scale calibration curves made with spectral lines of different intensities are parallel only when reciprocity failure is absent (i.e., $p=1$), whereas this parallelism requires only that p be constant over the exposure range covered. This is, in fact, implicit in some of the author's statements.

The section on the origin of spectra is an excellent example of skill in concentrating a large field into a small space by making every sentence count. The presentation, although semiquantitative in many places, is a model of tight organization and effective use of diagrams. The section on the excitation of spectra is brief; it includes a summary of Kaiser and Wallraff's classic paper on spark discharges and the generation of disruptive discharges. The emphasis is very properly placed on the current flowing in the discharge, rather than on the circuit parameters. No specific mention is made of the Pfeilsticker-Sventitskii low-voltage triggered arc.

The "practices" section of the book contains detailed discussions of certain exposure and sample preparation techniques selected to illustrate principles, rather than to provide laboratory directions. Presparking, electrode shapes, fractional distillation, the use of standard samples, and other topics are discussed in terms of specific techniques for analyzing liquids and solids. A section on preliminary chemical separation methods for trace analysis is accompanied by much good and heartfelt advice on chemical "asepsis" derived from the author's long experience in this field.

This book would serve as an excellent basis for a course in spectrochemistry.

CYRUS FELDMAN

Oak Ridge National Laboratory

An Introduction to Nematology: Anatomy, Sect. I. Rev. ed. B. G. Chitwood and M. B. Chitwood. Washington, D. C.: B. G. Chitwood, Box 104, Catholic University, 1950. 213 pp. $10.00.

After being out of print for several years this source book on nematodes, Section I, Parts I, II, and III, is again available, in one volume. It is intended for zoologists, helminthologists, agriculturists, and research workers in any field dealing with roundworms.

A historical résumé in Chapter I reminds us of the importance of nematodes, which annually exact a 10% toll from all crops in the United States. As parasites of domestic animals they cause a yearly loss of $500,000,000.

Chapter II outlines the classification of free-living and parasitic nematodes, in which the class Nematoda is given the rank of a phylum. This arrangement, together with the subdivisions, makes the entire classification more comprehensible and available to the nonspecialist in taxonomy.

Chapters III to XII illustrate and discuss fully the details of the finer anatomy of some 439 species and 357 genera of both free-living and parasitic nematodes, from the cuticle to the ova. The same excellent text figures, 145 in all, are retained from the original printing, with slight rearrangement and changes in pagination. Each chapter is supplied with a well-chosen bibliography brought up to date. It is significant, however, that few great contributions have been made since 1941; consequently, there are no large additions to the general content of the text.

The final chapter—XIII—discusses nemic relationships, origins, and evolution and gives a tabular comparison with other groups. A page and a half of abbreviation symbols and four and a half pages of an index to illustrations complete this excellent volume on nematodes.

LYELL J. THOMAS

Department of Zoology
University of Illinois

Botany: An Evolutionary Approach. R. Darnley Gibbs. Philadelphia: Blakiston, 1950. 554 pp. $6.00.

One difficulty that a reviewer of a textbook always faces is to judge the book from the position of the students for whom it is written. Even if the reviewer is a teacher, it is hard for him to remember how much and how little beginners in a particular field may know. It is even harder to judge whether the author's presentation of the material is explicit enough for the students to obtain the concepts and facts that were intended. It seems to this reviewer that Dr. Gibbs has been very successful, on the whole, in incorporating the information and the viewpoint that he set out to give. It is his contention that the best way to lead students into botany is to start with a discussion of the simplest plants and to work gradually through an evolutionary sequence to the study of the flowering plants. As he points out in the preface, this approach is not currently popular and serves in part, at least, as a justification for putting on the market yet another introductory botany text.

Prospective users of the book will have to decide whether they agree with the author that the evolutionary approach to plant science is best for beginning students. There can be no doubt that this approach should be available for advanced students and for general readers. The modern concepts of plant evolution have not been presented frequently enough in as clear and well-developed a manner as Gibbs achieves. This reviewer believes, however, that college freshmen and sophomores may have trouble in maintaining an interest in their botany course when they fail to learn about the familiar, conspicuous seed plants until late in the book—this despite the fact that in all the earlier chapters there are references to the usefulness or the harmfulness to man of many of the "lower" plants. Gibbs argues that students are not familiar with seed plants and are not especially interested in them. He is right that they are not familiar with them, but they think they are, and this feeling of familiarity serves to make them more interested in acquiring some knowledge of them than in learning about primitive plants first. Gibbs may be able to hold the attention of his students, for any good teacher can carry students into any field he is enthusiastic about. It is the belief of this reviewer, however, that Gibbs's *Botany* may be a hard book for many teachers to use successfully with first- or second-year college students. It should be an excellent text for advanced students.

The emphasis on evolution as the basis for organizing